REMARKS

Claims 1-17 have been amended to place them in more readable form and to remove redundancies. Claim 1 has been amended to delete "a metal oxide" in line 2 and to add "alumina" in its place. Claims 1 and 7 have been amended to read "compound(s)" to indicate that one or more compounds may be removed. Claims 6 and 12 have been amended to remove "metal oxide" in line 2 and to insert "alumina" in its place. Claims 18-25 have been added to preferred embodiments. Basis for new Claims 18-21 may be found on page 5, first full paragraph of the specification. Basis for new Claims 22 and 23 may be found on page 6, second full paragraph of the specification. Basis for new Claims 24 and 25 may be found on page 8, lines 7-9 from the bottom in the specification. No new matter has been added into the amended claims or new claims.

REQUEST FOR RECONSIDERATION

Claims 1-25 are active in the case.

The rejection of Claims 1, 7, and 13-17 under 35 U.S.C. § 102(b) as being anticipated by Chen et al. is traversed.

The claims, as amended, recite a first catalyst comprising alumina containing at least one of the elements of the platinum group, and a second catalyst comprising a mixture of zeolite with a metal oxide containing at least one of the elements of the platinum group. Chen et al. show a first oxidation catalyst comprising at least one metal oxide selected from the group consisting of SiO_2, TiO_2, ZrO_2, MgO, CaO, La_2O_3, Y_2O_3 and tin oxide with at least one platinum group metal, and a second catalyst comprising gamma alumina, delta alumina, theta alumina, transitional forms of alumina, silica-alumina, zeolites and combinations thereof with at least one platinum group metal. Therefore, it is submitted that Chen et al. do

not disclose a first catalyst comprising alumina containing at least one of the elements of the platinum group as set forth in the present claims.

Further, the arrangement of the catalysts in the present invention, i.e., the first catalyst comprising alumina containing at least one of the elements of the platinum group and the second catalyst comprising a mixture of zeolite with a metal oxide containing at least one of the elements of the platinum group, is very important in obtaining superior results for removing an organic compound or compounds. Chen et al. teach that the first oxidation catalyst comprises a platinum group metal on a low acidity support material, as discussed above, and the second oxidation catalyst comprises a platinum group metal on alumina or other high acidity support material or combinations thereof, as disclosed above, and are arranged so that a gas stream is brought into contact with the catalysts in the above recited order, but Chen et al. do not teach or suggest that the gas stream be brought into contact with the two oxidation catalysts in the reverse order as in the present claims.

In the combustion catalysts of the present invention using a combination of a first catalyst comprising a platinum group metal and alumina, and a second catalyst comprising a mixture of zeolite with a metal oxide containing a platinum group metal, it is crucial that the gas stream, from which an organic compound or organic compounds is to be removed, is contacted first with the first catalyst, followed by being contacted by the second catalyst. Table 2 on page 13 of the specification shows the results when inventive catalysts 1 and 2 of the present invention are compared to comparative catalysts 1, 2, and 3, which are outside the parameters of the present claims. When the gas stream, from which an organic compound or compounds is to be removed, is contacted first with the first catalyst, followed by being contacted with the second catalyst using catalyst 1 or catalyst 2 of the present invention, 95% conversion and 99% conversion of the total hydrocarbons can be obtained at much lower

temperatures, i.e., 196°C and 235°C, and 235°C and 272°C respectively, than when the gas stream is brought into contact with the same two catalysts arranged in the reverse order, as taught in Chen et al. (comparative catalyst 3). Then a much higher temperature is required, i.e., 471°C and 482°C, to obtain 95% conversion and 99% conversion, respectively, for comparative catalyst 3. Comparative catalyst 1, which uses a platinum-loaded alumina and comparative catalyst 2, which uses a mixture of the calcium-form beta type zeolite and platinum-loaded alumina in a mixture, also required higher temperatures for conversion of 95% and 99%, respectively, as compared to catalysts 1 and 2 of the present invention. Therefore, it is clear that the arrangement of the catalysts plays a very important part in supplying the superior results of the combustion catalyst of the present claims.

The rejection of Claims 2, 3, 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Chen et al. is traversed.

Since, as argued above, Chen et al. fail to anticipate or make obvious Claims 1, 7 and 13-17 and superior results are shown for the particular arrangement of the first and second catalysts in the combustion catalysts of the present claims, it is clear that Claims 2, 3, 8 and 9 distinguish over Chen et al.

The rejection of Claim 15 under 35 U.S.C. § 112, second paragraph is traversed. Claim 15 has been amended to delete the objected to term "about". Therefore, Claim 15 meets the requirements of 35 U.S.C. § 112.

It is submitted that Claims 1-25 are allowable and such action is respectfully requested.

Respectfully submitted,

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IN THE CLAIMS

1. (Amended) A combustion catalyst for removing organic [compounds] compound(s), which comprises a first catalyst comprising [a metal oxide] alumina containing at least one of the elements of the platinum group, and a second catalyst comprising a mixture of zeolite with a metal oxide containing at least one of the elements of the platinum group; said first catalyst and said second catalyst being arranged in a manner such that organic [compounds] compound(s) to be removed are contacted first with the first catalyst and then with the second catalyst.

2. (Amended) The combustion catalyst [for removing organic compounds] according to claim 1, wherein the ratio of the first catalyst to the second catalyst is in the range from 1:20 to 2:1 by weight.

3. (Amended) The combustion catalyst [for removing organic compounds] according to claim 1, wherein the ratio of zeolite to [a] the metal oxide containing at least one of the elements of the platinum group in the mixture of the second catalyst is in the range from 20:1 to 1:20 by weight.

4. (Amended) The combustion catalyst [for removing organic compounds] according to claim 1, wherein the zeolite is ion-exchanged with at least one ionic species selected from the group consisting of those of the groups IA and IIA.

5. (Amended) The combustion catalyst [for removing organic compounds] according

to claim 1, wherein the metal oxide in the [mixture of the] second catalyst is alumina having pore size distribution such that, where "a" represents a pore radius in Å at the maximum of the pore radius distribution curve, the accumulated pore volume of pores having radii in the range of (a-25) Å to (a+25) Å is at least 65% of the total volume of all the pores, said alumina containing less than 1% by weight of rare earth elements.

6. (Amended) The combustion catalyst [for removing organic compounds] according to claim 1, wherein the [metal oxide] alumina of the first catalyst [is alumina having] has a pore size distribution such that, where "a" represents a pore radius in Å at the maximum of the pore radius distribution curve, the accumulated pore volume of pores having radii in the range of (a-25) Å to (a+25) Å is at least 65% of the total volume of all the pores, said alumina containing less than 1% by weight of rare earth elements.

7. (Amended) A process for removing organic [compounds] compound(s) by catalytic combustion, [said process] comprising the step of contacting organic [compounds] compound(s) with [a] the combustion catalyst as claimed in claim 1, [in a manner such] so that the organic [compounds] compound(s) is/are contacted first with the first catalyst of the combustion catalyst and then with the second catalyst of the combustion catalyst.

8. (Amended) The process [for removing organic compounds] according to claim 7, wherein the ratio of the first catalyst to the second catalyst is in the range from 1:20 to 2:1 by weight.

9. (Amended) The process [for removing organic compounds] according to claim 7, wherein the ratio of the zeolite to [a] the metal oxide containing at least one of the elements of the platinum group in the mixture of the second catalyst is in the range from 20:1 to 1:20 by weight.

10. (Amended) The process [for removing organic compounds] according to claim 7,

wherein the zeolite is ion-exchanged with at least one ionic species selected from the group consisting of those of groups IA and IIA.

11. (Amended) The process [for removing organic compounds] according to claim 7, wherein the metal oxide in the [mixture of the] second catalyst is alumina having a pore size distribution such that, where "a" represents a pore radius in Å at the maximum of the pore radius distribution curve, the accumulated pore volume of pores having radii in the range of (a-25) Å to (a+25) Å is at least 65% of the total volume of all the pores, said alumina containing less than 1% by weight of rare earth elements.

12. (Amended) The process [for removing organic compounds] according to claim 7, wherein the [metal oxide] alumina of the first catalyst [is alumina having] has a pore size distribution such that, where "a" represents a pore radius in Å at the maximum of the pore radius distribution curve, the accumulated pore volume of pores having radii in the range of (a-25) Å to (a+25) Å is at least 65% of the total volume of all the pores, said alumina containing less than 1% by weight of rare earth elements.

13. (Amended) The process [for removing organic compounds] according to claim 7, wherein the organic [compounds] compound(s) comprises at least one halogen-containing organic compound.

14. (Amended) The process [for removing organic compounds] according to claim 7, wherein the organic [compounds] compound(s) show a vapor pressure of 0.01 kPa or higher at a temperature of 293.15 °K.

15. (Amended) The process [for removing organic compounds] according to claim 7, wherein a gas containing the organic [compounds] compound(s) is contacted with the combustion catalyst, the organic [compounds] compound(s) being present in a concentration of not greater than [about] 1% by volume in said gas.

16. (Amended) The process [for removing organic compounds] according to claim 7, wherein the organic [compounds] compound(s) comprise at least one C_2 hydrocarbon.

17. (Amended) The process [for removing organic compounds] according to claim 7, wherein the organic [compounds] compound(s) comprise at least one chlorinated C_2 hydrocarbon.

18-25. (New).